

C. Davis
(1971)

A UNITED STATES
DEPARTMENT OF
COMMERCE
PUBLICATION



NOAA Photoessay No. 2:

SKYWARN

U.S.
DEPARTMENT
OF
COMMERCE
National
Oceanic and
Atmospheric
Administration





The tornado—SKYWARN's reason for being. Most violent wind on earth, tornadoes leave trails of virtually complete destruction. SKYWARN volunteers, community and individual tornado preparedness, and the storm warnings of the National Weather Service combine to reduce the number of human casualties when such destruction comes.

Photoessay No. 2: SKYWARN

The approach of spring brings an unsettled period of American weather. The advance of warm weather means that warm, wet air off the tropical oceans and dry tongues of desert air from the southwest will open their annual springtime offensive against the cold, retreating flanks of continental winter.

The battle begins over the central Gulf states, then, in March and April, shifts eastward through Georgia to the sea. It touches the southern plains in May, the northern plains and Great Lakes states in June. And, through the year, there are the isolated, random skirmishes of any large campaign.

This competition between warm and cold, moist and dry, liberates massive amounts of energy into the atmosphere, and breeds nature's most familiar form of violence—thunderstorms, and their dangerous attendants: lightning, hail, high winds, heavy rains, and the violent whirlwinds called tornadoes.

The National Weather Service of NOAA, the U.S. Commerce Department's National Oceanic and Atmospheric Administration, warns Americans that such violence is on the way. From the National Severe Storms Forecast Center in Kansas City, Mo., severe weather watches are issued describing areas of possible thunderstorm and tornado activity. Then, as the emergency matures, warning operations shift to the locally affected offices of the National Weather Service, and to their networks of SKYWARN volunteers, whose eyes are still the best tornado-detectors around.

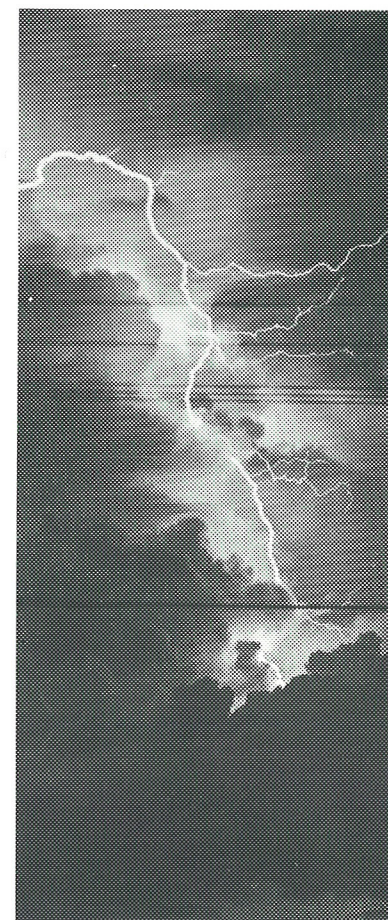
SKYWARN is NOAA's word for what the volunteer storm spotters do. It also describes the annual effort to make Americans tornado-conscious and tornado-ready. These deadly storms strike swiftly, and may occur anywhere, at any time. Tornado preparedness is the only way to keep tornado casualties low.

This publication tells some of the SKYWARN story in photographs, reproduced here in screened form for line reproduction. They are also available as 8 x 10 inch, black and white glossy prints, from:

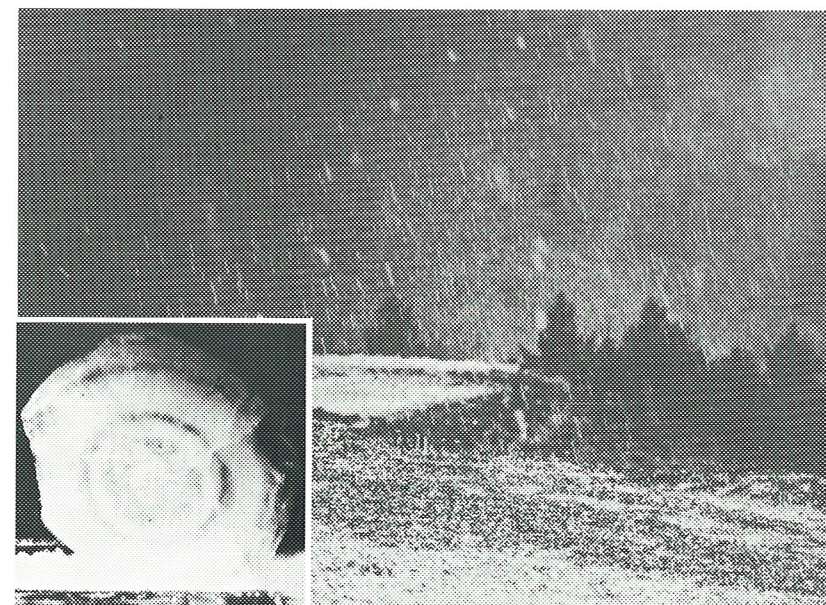
Photo Editor
Office of Public Information
National Oceanic and Atmospheric Administration
Rockville, Maryland 20852

Please credit: "NOAA Photo".

SKYWARN preparedness begins while the sky is blue, and while it darkens with thunderclouds. A mature thunderstorm system may be several miles across its base and tower to altitudes of 60,000 feet or more—the higher the cloud top, the more intense the storm. Some form as lonely giants, some as a line of raging storms along a front. With or without tornadoes, a mature thunderstorm can cause death and damage with its high winds, heavy rains, hail, and lightning.



Lightning, the thunderbolt of mythology, kills more Americans most years than hurricanes or tornadoes. To SKYWARN observers, lightning is an indication of thunderstorm intensity: usually, the more lightning observed, the more violent the storm system. Although specific warnings against lightning are not given, SKYWARN preparedness sees the implicit warning of lightning in any forecast of thunderstorms.

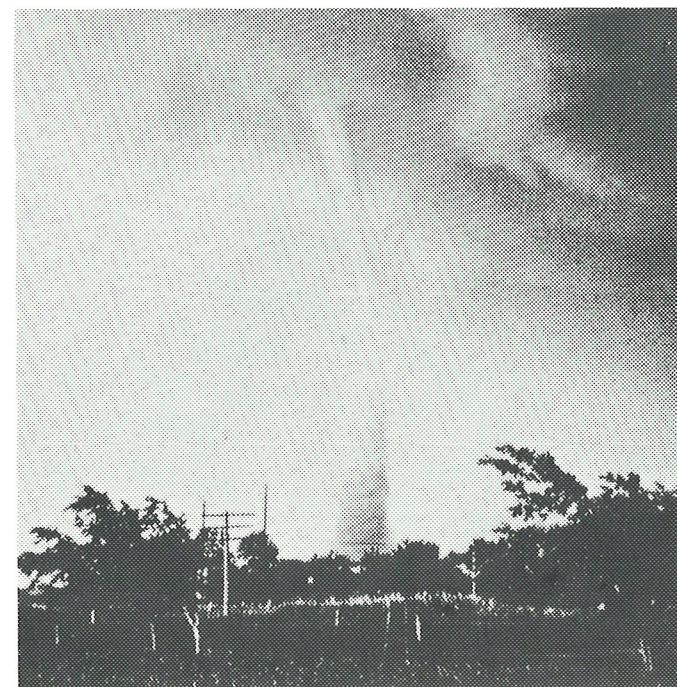


Hail is a key event for SKYWARN observers, for its appearance indicates that the thunderstorm system has entered a very intense phase. The larger the hail, generally speaking, the more intense the storm. When hail begins, watch out for tornadoes.



1

The adolescence and maturity of a tornado was photographed near Enid, Oklahoma, June 5, 1966. Thin, light-colored funnel cloud touches down (1), darkens as dirt and debris flow up into the violent winds (2), thickens and grows coarser (3) as it reaches a ropeshaped, frightening maturity (4).



2



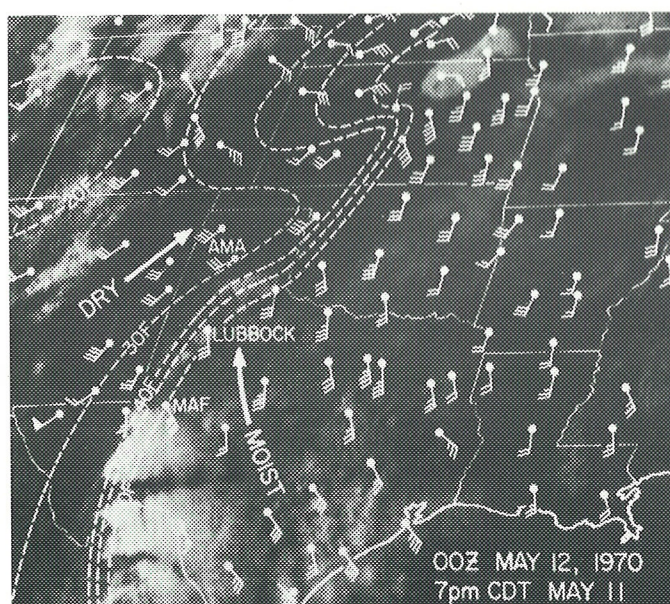
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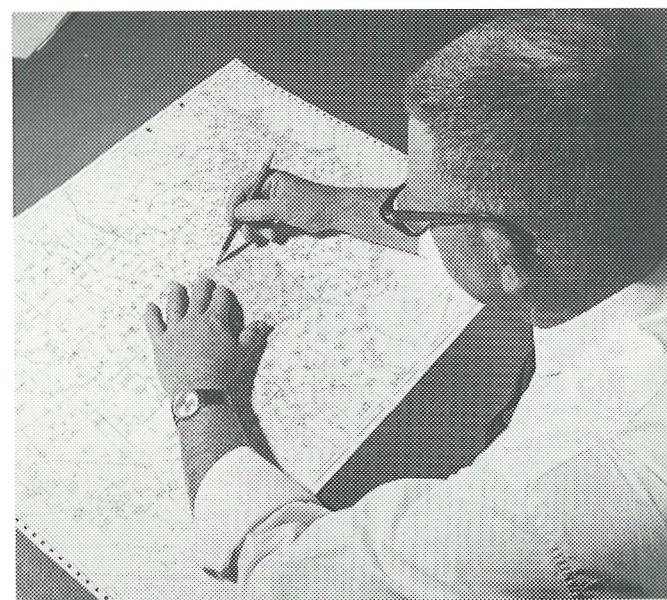
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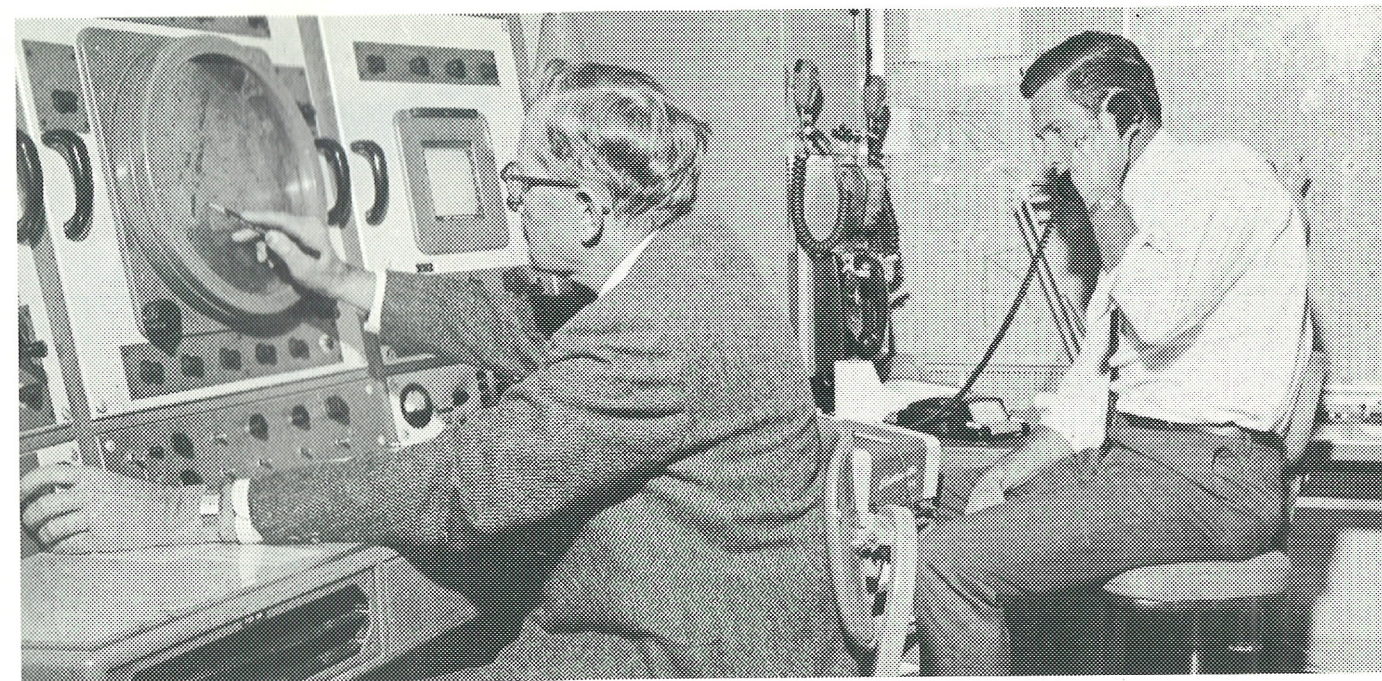
Meteorologists at the National Severe Storms Forecast Center in Kansas City, Mo., monitor conditions in the North American atmosphere using surface data from hundreds of points, radar summaries, satellite photographs, meteorological upper-air profiles (obtained by sounding balloons), and reports from pilots. From these thousands of pieces of information, weathermen determine the area that is most likely to experience severe weather. Information on this area is then issued to National Weather Service Offices and the public in the form of a watch bulletin.



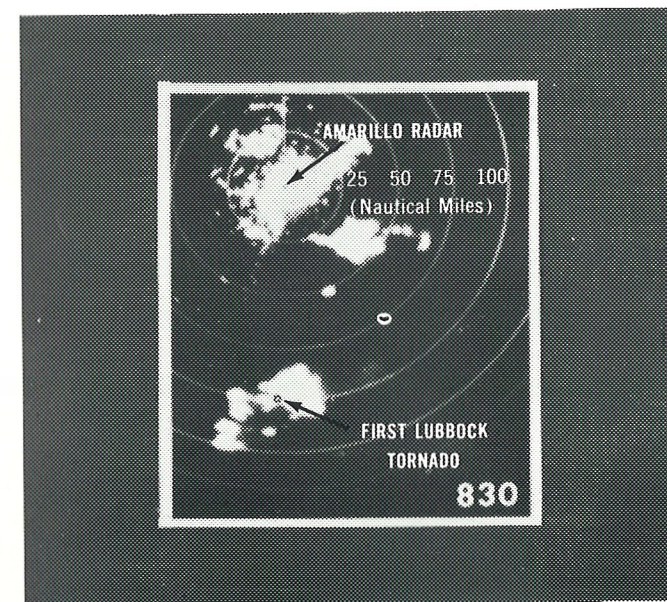
The near-continuous view provided by geostationary Applications Technology Satellite (ATS) 3 permits National Severe Storm Forecast Center meteorologists to watch dangerous thunderstorm activity as it actually happens. This new storm-watching capability may contribute to more effective forecasts of hazardous weather. Shown here, the thundercloud system which spawned tornadoes near Lubbock, Texas, in May 1970 as seen from the ATS 3 satellite.



Commerce Department scientists at the National Severe Storms Forecast Center determine the area covered by a tornado watch. Watch areas are usually about 140 miles wide by 240 miles long. The message describes what is expected, where, and for how long. A watch is not a warning, but only indicates the possibility of hazardous weather in the area and time period specified.



Local offices of the National Weather Service, once alerted by a tornado or severe thunderstorm watch bulletin, monitor the atmosphere over their area for signs of dangerous activity—high winds, heavy rain, hail, intense lightning, rotary cloud motion. Here, while one meteorologist watches the radarscope, another stays on the telephone to the SKYWARN net. Between them, they can blunt the edge of a tornado disaster in their community.



Radar is one of the meteorologist's most useful tornado-detecting devices. Here, tell-tale echoes picked up by the Amarillo, Texas, radar indicates a tornado (arrow) forming near Lubbock. Timely warning and the tornado-consciousness of its citizens kept Lubbock's casualties down when the twister roared through an hour later.



The human eye is still the only positive detector of tornadoes, and the eyes of SKYWARN volunteers across the Nation provide the first line of defense against these destructive storms. SKYWARN volunteers may be law enforcement personnel, farmers, factory workers, housewives—public-spirited citizens who help the National Weather Service watch our dangerous skies.

Remember Street?

Before the tornado.

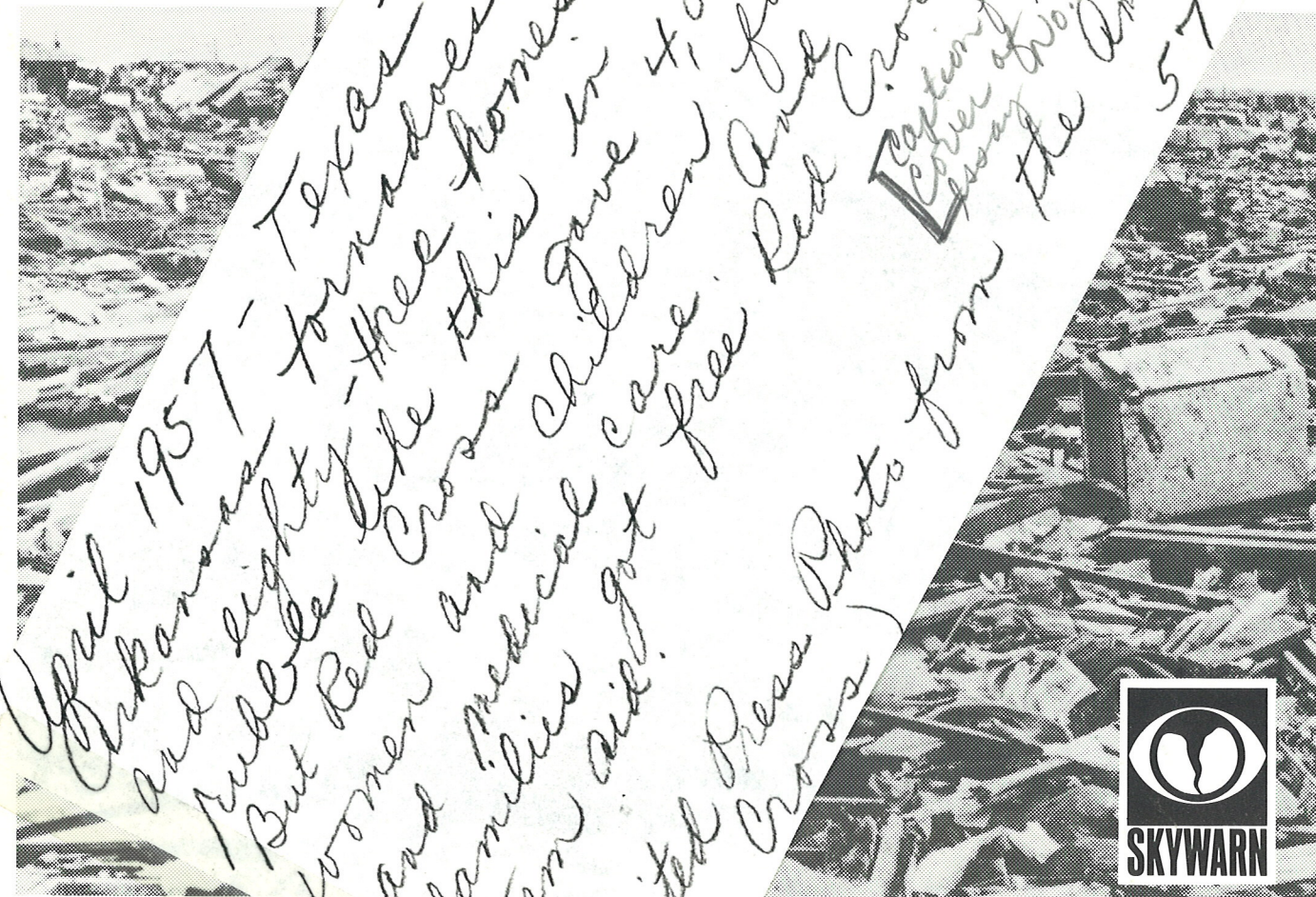
When you hear a National W
warning it means a tornad
detected nearby.

Watch for the funnel cl

Listen for the roar.

Take cover below gr
solid shelter.

Curl up and shie



This message from the Nation.

Department of Commerce is published in the interest of public safety.



SKYWARN preparedness takes many forms. To make every citizen tornado-conscious, SKYWARN preparedness ads are mailed out each year to newspapers in "tornado country". And, each year, many publishers around the Nation donate space for the ad, to see that the SKYWARN message gets to the reader. The SKYWARN 71 ad shown here reminds individuals and communities of the violence in our atmosphere.